PROJECT COMPLETION REPORT

MISSISSIPPI RIVER SEDIMENT DELIVERY SYSTEM
BAYOU DUPONT STATE PROJECT NO. BA-39

JEFFERSON AND ST. BERNARD PARISHES, LOUISIANA

Prepared for

STATE OF LOUISIANA
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL PROTECTION AND RESTORATION

Prepared by

ABMB Engineers, Inc.
500 Main Street
Baton Rouge, Louisiana 70801

October 2010

PROJECT NAME **Bayou Dupont Marsh Creation Project**

CWPPRA/STATE PROJECT NO. **BA-39**

Report Date: **July 8, 2010**

BY: **ABMB Engineers, Inc.**
500 Main Street
Baton Rouge, Louisiana 70801

1. *DNR Project Managers/Engineer/Federal Sponsor/Construction Contractor/Inspection Services:*

DNR/OCPR Project Manager	Brad Miller	Telephone	225-342-4122
DNR/OCPR Construction Project Manager	Peter Hopkins	Telephone	504-280-4070
DNR/OCPR Monitoring Manager	Bill Boshart	Telephone	504-280-4063
Federal Agency Project Manager (CWPPRA)	Paul Kaspar (EPA)	Telephone	214-665-7459
Federal Agency Project Manager (ARRA)	CC Linder (NOAA)	Telephone	214-665-7459
DNR/OCPR Construction Management Engineer	Debby Sheets (ABMB)	Telephone	225-765-7400
DNR/OCPR Construction Inspector	Heath Broussard (ABMB)	Telephone	225-765-7400
Great Lakes Dredge and Dock Company, LLC. Project Sponsor	Sam Morrison	Telephone	630-805-4099
Great Lakes Dredge and Dock Company, LLC. Project Manager	Roy Woods	Telephone	504-908-8854

2. *Location and description of project.*

The Bayou Dupont Marsh Creation Project (BA-39) is located adjacent to Bayou Dupont and southeast of Cheniere Traverse Bayou, approximately 3.7 miles northwest of Myrtle Grove, Louisiana. Project features are located in Plaquemines and Jefferson Parishes. The area lies west of Louisiana Highway 23 and just north of the Myrtle Grove Marina within the Barataria Basin. The borrow site was located in the Mississippi River between miles 63 and 65. Because the borrow area was in the river, this project was located in both Plaquemines and Jefferson Parishes. The project area was only accessible by boat. See Appendix Project Fact Sheet.

The Bayou Dupont project represented the first example of pipeline transport of sediment from the river to build marsh as a Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) project. The project involved dredging sediment from the Mississippi River for marsh creation and pumping it via pipeline into an area of open water and broken marsh west of the Plaquemines Parish flood protection levee in the rapidly eroding and subsiding section of the Barataria land bridge. This project created marsh using Mississippi River sediment as opposed to hydraulically dredging material from within the Barataria Basin.

Over six miles of pipeline ran from the river to the project area. Permanent casing pipes were jacked and bored into place to allow the slurry pipeline to cross beneath the New Orleans and Gulf Coast Railway and LA Highway 23. The dredged material was contained primarily with existing land features. Newly-constructed low containment dikes were necessary along a portion of the project area to create full perimeter containment. The containment dikes were constructed from in-situ soils. The contractor built internal training dikes as necessary to improve containment or dewatering of the fill containment areas. Settlement plates were installed within the fill area.

Increment 2 was added by change order to this task and created additional marsh to the west of Marsh Creation Area 1.

The original project was federally sponsored by the United States Environmental Protection Agency (EPA) and the local sponsor was Louisiana Department of Natural Resources (LDNR) under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). It was on Priority Project List number 12. Increment 2 work was sponsored by NOAA, and was funded by The American Recovery and Reinvestment Act (ARRA) through a grant administered by NOAA with additional funding through the CWPPRA grant administered by EPA.

3. *Final, as-built features, boundaries and resulting acreage (use attachments if necessary).*

Approximately 25,935 linear feet of containment dike was used to create approximately 484 acres of sustainable marsh in Marsh Creation Areas 1 and 2. Increment 2 added approximately 84 acres of marsh for a total of 568 acres contained within. 6,241 linear feet of containment dike. Approximately 95 linear feet and 194 linear feet of permanent of 48 inch casing pipe casing. The railroad crossing had approximately 95 linear feet of 42 inch casing and the highway had 194 linear feet of permanent casing.

4. *Project Cost Elements*

Mississippi River Sediment Delivery System – Bayou Dupont	CWPPRA Project Construction Cost	CWPPRA Cost Incurred during Construction	ARRA Cost Incurred during Construction
Construction	$ 24,012,739.46		
Supervision & Inspection (ABMB Engineers, Inc.)	$ 283,000.00		
Administration			

5. *Items of Work Construction*

Item No.	Item	Unit	Est. Amount	Final Quantity	Bid Unit Price	Final Amount
1	Mobilization & Demobilization	L.S.	1	1	$ 5,415,000	$ 5,415,000.00
2	Surveys	L.S.	1	1	$ 85,000	$ 85,000.00
3	Earthen Containment Dikes	Linear Ft.	26,821	25,935	$ 30	$ 778,050.00
4	Jacked Casing Pipe	Linear Ft.	260	289	$1,015	$ 293,335.00
5	Marsh Creation Fill	Cubic Yard	2,335,110	2,237,769	$ 6.05	$13,538,502.45
6	Settlement Plates	Each	5	5	$ 1,200	$ 6,000.00
7	Grade Stakes	L.S.	1	1	$ 17,200	$ 17,200.00

Item No.	Item	Unit	Est. Amount	Final Quantity	Bid Unit Price	Final Amount
8	Mobilization & Demobilization	L.S.	1	1	$ 420,000	$ 420,000.00
9	Surveys	L.S.	1	1	$ 65,000	$ 65,000.00
10	Earthen Containment Dikes	Linear Ft.	6,204	6,241	$ 43	$ 268,363.00
11	Marsh Creation Fill	Cubic Yard	390,055	340,471	$ 9.20	$ 3,132,333.20
12	Settlement Plates	Each	1	1	$ 3,300	$ 3,300.00
13	Federal Reporting	L.S.	1	1	$ 5,000	$ 5,000.00
14	Stand-By Time	Dredge Days	1.6725	0	$ 217,425	$ 217,425.00

6. Construction and construction oversight.

Original Construction Contract	$ 20,719,145.50
Change Orders 1,2, 3 & 4	$ 4,551,658.81
Over/Under runs	($ 1,258,064.85.00)
Final construction contract	$ 24,012,739.46
Supervision & Inspection Cost	$ 283,000.00 (thru 10/10)

7. Major equipment used.

GLDD River-Based Equipment:

- Cutter suction electric dredge ***Florida*** with power generation barge housing six generators for a total of 18,000 hp.
- Booster Jessie
- Tugboats: Evergreen
- Survey Vessel Ohio River
- JMC 130 Spud Barge
- Power Barge
- Supply Barge
- Anchor Barge
- Skidder Barge
- Derrick 63

Land-Based Equipment:

- GLDD Rolligon (2)
- Marsh Master (2)
- D6N Dozers (5)
- CAT 330D Excavator
- 966 Front End Loader (2)

Wilco Marsh Buggies- Dike Construction Subcontractor:

- CAT 330 Long Reach #W-34 Track Mounted Excavator
- CAT 330 Short Reach #W-62 Track Mounted
- Airboat

8. Discuss construction sequences and activities, problems encountered, and solutions to problems, etc.

The Notice to Proceed, effective February 4, 2009, was issued on January 21, 2009. The period of performance was 270 calendar days. Addendum Number 4, dated November 6, 2008, added 30 days for a 300 calendar day period of performance and a contract completion date of December 2, 2009. On March 26, 2009, the prescribed pre-construction meeting was held at the Belle Chasse Council Office Building. The contractor, Great Lakes Dredge & Dock Company, LLC, mobilized the survey party on April 2, 2009.

Project Site, Permit, Landowners

Per the Department of the Army permit, dredge pipe installation, hydraulic dredging, removal of the dredge pipe, excavation, and work over the levee was limited to when the stage of the Mississippi River was below elevation +11.0 feet NGVD 1929 on the Carrollton Gage at New Orleans. The river was above 11.0 feet from April 10, 2009 thru June 21, 2009. The permit also required that the work not impede nor interfere with navigation on the Mississippi River and required ongoing coordination with the River Pilots Association and the United States Coast Guard.

The project access road, West Ravenna Road, is owned by Conoco Phillips. Conoco Phillips held a meeting on April 9, 2009 to discuss the safety and security. The security office required the names of all personnel on sit. If an alarm was heard on site, the Duty Sergeant must be called. Before any welding could begin, fire extinguishing equipment had to be on site, and in the event of fire, the Conoco-Phillips representative must be notified.

Access on West Ravenna Road is shared by multiple parties including the owner, parish, local property owners, and lessees. During August 2009, the road was under heavy traffic by GLDD and St. Bernard Parish. The Parish used the road to haul fill material in dump trucks to the back levee; while GLDD used it for equipment transport. The road was in disrepair, and became impassable due to heavy rains and the amount of traffic from multiple contractors. The road was

repaired by the Parish and GLDD.

In Marsh Creation Area 2, there is a fifteen anode Shell Pipe Line Rectifier Field with above-ground boxes. The anode location is shown on the As-Built Drawings, and the contractor flagged off this area as a "No Work" area. A Shell pipeline monitoring station is located over the 20 inch pipeline near the intersection of West Ravenna Road the flood protection levee. This structure was protected during construction. In addition, the 20 inch Shell Oil pipeline runs parallel to the existing flood protection levee on the fill side of Marsh Creation Area 2. A Shell representative had to be present or give approval when equipment crossed the pipeline; and no excavation was permitted within 50 feet of the pipeline. Plaquemines Parish owns the flood protection levee and excavation was not permitted within 100 feet except at the tie in location. On the eastern enhanced spoil banks in Marsh Creation Two, there are geotechnical instrumentation stations. The cables to the peizometers were damaged by the contractor's equipment running over the cables which required reparations twice.

Pre-Construction Survey

On April 2nd, the contractor established survey controls and began layout near the siphon. The contract required the contractor to verify pipeline and waterline locations prior to beginning construction. The existing 10" and 20" water lines adjacent to LA 23 were required to be probed, located, and marked prior to construction. The edge of the casing was to be installed at least two feet below the edge of the water lines.

The borrow area magnetometer survey was performed by T. Baker Smith on April 7, 2009. The borrow area limits were approximately 1,000' L x 6,800' W, and were located to the west of the Mississippi River navigation channel. The marsh preconstruction survey for transects 1 thru 26 was performed on September 1, 2009 and additional transects 27 thru 37 on August 20, 2009 in August 2009.

Permanent Jacked Casing Pipe Crossings

The high river stage adversely affected the scheduling of subcontractors to install the casings under the road and railroad. The USACE permit restricted excavation within 1,500 feet of the levee when the Mississippi river was above +11.0 feet at the Carrollton gage. As a result of the anticipation of delay due to the USACE restriction, the contractor experienced difficulties scheduling subcontractors and a time extension was granted in Change Order 3.

Directional Road Boring Inc. (DRB) of Metairie subcontracted Giken America Corporation from Orlando, Florida to install the steel sheet piling utilizing the *Silent Piler* press-in method for the cofferdams. Giken began the sheet pile installation at the railroad tracks on August 12, 2009 and completed it on August 14, 2009. The rectangular railroad jacking pit measured 15 x 36 feet, and the receiving pit 9 x 15 feet. The Highway 23 jacking pit measured 15 x 36 feet, and the receiving pit 9 x 12 feet. The alignment of the highway crossing was revised to avoid an overhead power line pole, see Change Order Number One. The New Orleans & Gulf Coast

Railroad and the LADOTD required compliance with standard construction and material specifications and the railroad also required a Right of Entry Agreement. The pipe casings were 48 inch diameter, 0 .625 inch wall thickness, and were typically installed in ten-foot sections with full depth welds at each joint.

Tomahawk Construction began excavating for the railroad jack and bore pits on August 18, 2009. DRB began the railroad jack and bore on August 22, 2009 and completed it on August 30, 2009. A pilot hole was not utilized on the railroad jack and bore. The alignment was corrected during boring by the installation of a steering tab welded to the leading edge of the casing and the casing entered the edge of the receiving pit. The LA Highway 23 crossing excavation began on August 21, 2009 with the jack and bore beginning on September 3rd. Due to the near miss of the railroad jack and bore and the longer length of the Hwy 23 jack and bore, a pilot hole was utilized. The contractor encountered difficulties with high ground water. The movement of the jacking equipment caused pumping action under the equipment deck and destabilized the bottom of the pit. This affected the alignment of the jacking equipment and caused the casing to rise above the planned grade in spite of the pilot hole. Equipment had to be removed from the pit, and a false bottom installed with a well point system to control the water level. The failure of the contractor designed shoring also caused the loss of the adjacent survey monument and threatened an adjacent Entergy power pole. Entergy officials were called to the site and braced the power pole. The survey monument was replaced at the contractor's expense by John Chance Land Surveyors Inc. on May 4, 2010. Additionally, the preconstruction survey failed to accurately locate the underground water line which resulted in the 10 inch water line being broken, which caused a void to form near the road shoulder. The contractor pumped sand to fill the void before proceeding. The water line was repaired by the Plaquemines Parish Water Department. During this process, the error in the pre-construction survey of the elevation of this pipe was discovered. The Contractor was able to raise the elevation of the casing and still maintain the required clearance under the waterlines. The casing was withdrawn and reinstalled at the new elevation. The casing installation at the highway crossing was completed on October 27, 2009.

Dredge Slurry Pipeline Corridor

Great Lakes Dredge & Dock Inc. (GLDD) staged a temporary marine access dock upstream from the Naomi Siphon. The slurry pipeline from the Mississippi River was placed over the Mississippi Flood Protection Levee in accordance with the levee crossing plan. Two different types and sizes of pipe were utilized in the dredge slurry pipeline. From the water's edge, longer pipe sections up to 160-foot lengths were welded together to form a solid two mile section to compensate for higher pressures experienced by the booster. A subcontractor, SPI/Mobile Works, was used to weld pipe. The remainder of the pipeline was comprised of 40-foot lengths of pipe flanged and bolted together. There were two temporary levee crossings; one on the Mississippi River Flood Protection Levee (MRL), and one over the Plaquemines Parish Flood Protection Levee. The east-west section of the dredge slurry pipeline corridor near the Naomi siphon is owned by the Plaquemines Parish Government. The Parish allowed the contractor to build a 40 car gravel parking lot in this area.

From the MRL crossing near the Naomi Siphon, the slurry pipeline went over land to the New Orleans and Gulf Coast Railroad Crossings and through the permanent 48 inch steel casing pipes that were previously installed at the railroad and LA Highway 23 crossing. The dredge slurry pipeline continued westward to the north/south drainage canal through land utilized for cattle grazing. There were three cattle gates and four temporary ramps to facilitate cattle crossings. After crossing the north/south drainage canal, it proceeded south to West Ravenna Road. A gravel crossing was constructed at the junction with West Ravenna Road and at driveways serving the tenants. The pipeline followed the south side of the roadway to the back levee.

Slurry pipe delivery began on May 27, 2009. The longer pipe lengths of 30 inch diameter pipe arrived by barge and were lifted over the levee by crane, while the shorter pipe was delivered by truck. The contractor's staging area was east of LA Highway 23. The first 12,000 linear feet of shore pipeline from the water's edge was butt welded with a greater wall thickness in order to withstand higher pressures. The remaining 40-foot lengths were flange jointed pipe appropriate for lower pressure.

Access to the marsh creation site was initially through a private boat launch owned by River Rest, LLC hunting camp. As the fill material settled, vehicular traffic could travel over the fill site.

Containment Dikes

Wilco Marsh Buggies Inc. began containment dike construction in Marsh Creation Area 2 on April 20, 2009. The only area lacking an existing spoil bank was on the south side of Marsh Creation Area 2. This area required multiple passes to attain the required 3.0'+/- 0.5' elevation. A longer reach excavator was needed to accommodate the deeper water levels. A settlement plate was set in the south dike on June 5, 2009. That plate subsequently shifted and is not considered viable.

After the contract acceptance period, the containment dikes and enhanced spoil banks were degraded or gapped to the same elevation as the marsh platform in order to allow intertidal flow. Gapping locations were determined by EPA/OCPR field determinations based on the existing topography.

Marsh Creation, Crossings

The material type was heavy sand and dredge production required more dozers to move the material than anticipated by the contractor. The dozers pushed up the material into dikes at the discharge to direct the flow. Material was pumped to the required over-elevation, and then the dozers spread the material. The rolligons were used to add or move discharge pipe. The contractor experienced difficulty in pumping material into the existing marsh with vegetation areas. The best practice was to pump around the existing marsh areas and force the soft displaced mud into the voids in the marsh. Sand was then added, as needed, to push up the soft material until it was to grade. The displaced material at times did not support dozers to continue

building pipelines. As a result, the operational methods were adapted to isolate the soft spots in pockets surrounded by sand and bypass the marsh areas. The cables to the peizometers in Marsh Creation Two were damaged by the contractor's equipment running over the cables which required reparations twice.

A land bridge was pumped across the canal for access to Marsh Creation Area 1. Three 30 inch CMP culverts were installed to allow tidal flow. River Rest, LLC, a local land owner, submitted a permit requesting that the land bridge be allowed to remain. That permit was granted by Permit No. MVN-2010-0422-EQ (attached for reference).

The remaining settlement plates and survey stakes were in place by November 2, 2009. GLDD submitted a settlement plate design that included a detachable upper rod with a longer lower rod for stability. See Appendix for approved settlement plate submittal. The dredge began pumping into Marsh Creation Area 2 on November 11, 2009, and completed December 25, 2009. The marsh creation fill target elevation was 2.0'+/- 0.3' within the earthen containment dikes. Pumping into Marsh Creation Area 1 began on December 10, 2009 and was completed on March 15, 2010.

Dredging, Navigation

As the dredge moved northward in the borrow area, submerged line was added. The contractor used precautions for threatened and endangered species such as the West Indian Manatee and Pallid Sturgeon. The dredge pumped through a combination of floating and shore pipelines consisting of 5,000 linear feet of subline; 1,800 feet of pontoon; and over six miles of slurry pipe. Dredge setup was complete, and the dredge began to pump fill material into Marsh Creation Area 2 on November 6, 2009. The borrow area limits were approximately 6,800' W x 1,000' L feet, and were located to the west of the Mississippi River navigation channel. The dredge made two cuts approximately 2500'L x 250'W. It would spud over and repeat dredging to a depth of -76 feet to -80 feet.

In January 2010, the Crescent River Pilots Association lodged complaints that the proximity of the dredge to the navigation channel was causing one-way traffic and a possible hazard. In order to increase the area available for navigation past the borrow area, Field Order Number 2 was issued to relocate the borrow area approximately 350 feet toward the west bank of the Mississippi River.

The dredge encountered unknown obstructions that resulted in failed equipment and lost time. On February 9, 2010, the dredge struck a ship anchor chain which caused the cutter section of the ladder to detach. The Contractor performed a more thorough magnetometer survey on the revised borrow area on February 24, 2010.

Progress Surveys, Fill Quantities

During construction, process surveys for partial payment and quality control were performed.

The survey baseline and transects shown in the plans were used. All surveys were signed and sealed by a licensed land surveyor. The contractor surveyed at points every fifty feet along each transect line. The contract required fill quantities to be calculated by a method approved by the Engineer. GLDD proposed a computer software program to model pre and post construction surfaces. These surfaces would be used for volume calculations. Cross sections, plan views, elevations, quantities and volumes, with surveyed dates on the corresponding cells, were submitted. Cell volumes were verified by average end area calculations and supporting calculations. Survey data points were used by OCPR to perform an independent evaluation of process surveys.

The use of grade stakes was discontinued after Marsh Creation Area 2 because the stakes were moved by the fill material and equipment. The contractor utilized electronic surveying equipment daily.

Increment 2

A second land bridge was pumped for access to Increment 2 from Marsh Creation Area 1. The USACE permit granted to River Rest, LLC allowed this feature to also remain in place. Wilco Marsh Buggies began Increment 2 containment dike construction on March 3, 2010. Containment dikes were not needed on the north side except at openings in the existing bank.

Before the containment dikes were complete, dredge fill operations began. Sand was pumped from March 13, 2010 till March 27, 2010. The target elevation was not attained in an area on the west side of Increment 2 because soft soil conditions. Dike degradation was not necessary in this area.

Project Completion

The contractor began demobilizing slurry pipe on March 28, 2010. After the slurry pipe was removed, caps were welded to the permanent casing pipe. The casings were filled with water, and two railroad markers were placed. One on either side, fifteen feet from the railroad tracks.

The contractor demobilized completely by May 10, 2010. Final inspection was held on May 25, 2010. Final As-built drawings were submitted for acceptance on May 21, 2010.

9. *Construction change orders and field changes.*

There were four change orders and two field changes issued on this project.

a. Change Order number One was issued to reduce the length of containment dike and increase the length of pipe casing.

b. Change Order Two added Increment 2 to the project. Increment 2 plans and specifications, dated February 23, 2010 increased the contract amount by $ 4,566,030.00

and added 75 calendar days. This work added approximately 90 acres of marsh creation to the west of Marsh Creation Area 1.

c. Change Order Three increased the contract period of performance by 48 calendar days because of the effect on scheduling subcontractors for the pipe casing jack and bore operations due to anticipated USACE work restrictions on excavation within 1,500 feet of the levee when the Mississippi River is above +11.0 feet at the Carrollton gage; and lost time due to damage to the dredge ladder travel block encountered when hitting a large anchor chain while dredging. Total contract time is 423 calendar days.

d. Change Order Four was written to reconcile final quantities and charge for cost of repairing Contractor damaged geotechnical instrumentation.

e. Field Order Number One allowed the Contractor to realign the containment dike in Marsh Area 2 to avoid possible conflict with the hunting camp building. The containment dike in the northeast corner will terminate at the 50 foot buffer of the Shell Pipeline at no additional cost to the owner and no contract time extension.

f. In order to increase the amount of area available for navigation to pass in response to the comments from the navigation industry, Field Order Number Two relocated the borrow area approximately 350 feet westward.

10. Safety and Accidents.

The contractor reported nine accidents during the construction of this project.

11. *Significant Construction Dates:*

Description	Date
Bid Opening	*November 13, 2008*
Construction Contract Award	*January 21, 2009*
Preconstruction Conference	*March 2009*
Notice to Proceed	*February 4, 2009*
Mobilization	*April 2, 2009*
Construction Start	*August 12, 2009*
Construction Completion	*May 10, 2010*
Final Inspection	*May 20, 2010*

Letter of Final Inspection & Acceptance	*August 16, 2010*

SUPPLEMENT TO COMPLETION REPORT

CONSTRUCTION PLANS

List any items pertinent to the plans which caused problems, need clarification or changes for future contracts of this nature.

DESCRIPTION OF ITEM IN PLANS	RECOMMENDATIONS FOR FUTURE CONTRACTS
Survey transects and baselines are not defined in Survey Layout.	Transect and baseline geometry should be clearly defined by the plans and or specifications in a table.
The limits of the work area are not defined.	Plans should define the limits of work by coordinates or geometry.
SP-8 requires a boat for marine access, but access to the marsh creation areas is not always available.	Transportation should include an airboat or four-wheeler for transportation to the marsh creation areas.
The settlement plate design does not allow the removal of the upright after installation.	Construction methods for the installation of settlement plates need to be reviewed and updated.
Casing pipe detail does not account for filling of pipe.	Drawing should include method for welding, cutting, and port for filling the pipe.
Submittal requirements need to be clarified.	A submittal register containing the type of submittal, reviewer, and description of item(s) would clarify the submittal requirements.

CONSTRUCTION SPECIFICATIONS

List any items in the construction specifications which caused problems, need clarification or changes for future contracts of this nature.

DESCRIPTION OF ITEM IN SPECIFICATIONS	RECOMMENDATIONS FOR FUTURE CONTRACTS
The Earthen Containment Dike Construction and Maintenance Specification requires the dike to be degraded to the same elevation as the marsh creation platform upon completion.	The requirements for degrading the dikes should utilize a combination of degrading and gapping with connection to ponds created in the fill area to promote tidal exchange. Consider retaining dikes based on exposure to wave action.

DESCRIPTION OF ITEM IN SPECIFICATIONS	RECOMMENDATIONS FOR FUTURE CONTRACTS
Technical Specification paragraph 6.5 provides the borrow area cut sequence and the USACE restrictions in order to maintain navigation. During construction, the River Pilots' Association filed complaints with the Coast Guard claiming obstruction to navigation. As a result, the borrow area had to be moved.	The limits of the navigation channel need to be agreed upon by the USACE and the River Pilots' Association.
The specifications do not consider the river stage though the work is dependent on river conditions and permit.	Projects should be scheduled to coincide with historical river conditions to allow for a shorter duration.
General Provision, Default and Termination of Contract, states that work must begin within the time frame specified in the Notice to Proceed.	The description of an activity that constitutes starting work relative to the notice to proceed needs to be defined.
Grade stakes moved during fill placement and were not functional.	Suggest using the contractor's surveyor to monitor elevation with global positioning system (gps) spot checks.
Technical Specification 6, Hydraulic Dredging, provides a target elevation and project tolerances.	The Engineer should be given the option to waive the fill tolerances based on the field conditions. In some instances the marsh fill elevation promotes development of marsh features while protecting perimeter.
Special Provision 4 and General Provision 8 require multiple items before the pre-construction conference.	The deliverables should be coordinated with the type of work and the physical beginning of work. The Work Plan needs to be reviewed to determine what is necessary for the pre-con and what can be provided, with greater detail, after mobilization.
SP 6.5 states that contractor shall maintain ongoing coordination with the USACE and the River Pilots Assoc.	Method of communication and frequency should be defined, as well as a point of contact.
SP-2.1, Surveying, and TS-3, Surveys, do not give a format for magnetometer survey.	Give requirements for magnetometer survey and include an example format. See Appendix for Magnetometer Guide.

DESCRIPTION OF ITEM IN SPECIFICATIONS	RECOMMENDATIONS FOR FUTURE CONTRACTS
The method for calculating fill quantity should be modified to allow computer software. The surveying specifications should provide specific requirements for computer modeling software.	The surveying specification should include Autodesk Land Desktop Computer modeling requirements in the contract documents. Specifications should include survey requirements such as the designation of breaklines. Guidelines for defining breaklines used in the development of the model need to be defined.
The technical specifications need to account for irregular shaped areas.	The use of computer generated volumes would allow all shapes.

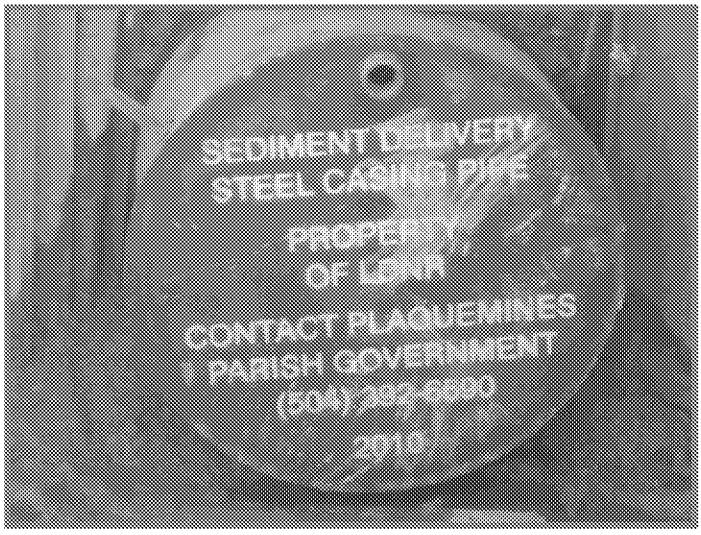
APPENDICES

- Project Photos
- Project Fact Sheet
- Change Orders
- Field Orders
- As-Built Schedule
- Settlement Plate
- COE Permit
- Magnetometer Guide

Project Photos

PROJECT PHOTOS
PG. 1/2

Permanent Jacked Casing Pipe Crossings



Containment Dikes

Dredge Slurry Pipeline Corridor

PROJECT PHOTOS
PG. 2/2

Marsh Creation

Marsh Creation Crossing

Project Fact Sheet

April 2009
Cost figures as of April 2010

Mississippi River Sediment Delivery System - Bayou Dupont (BA-39)

Project Status

Task Force Approval Date: 2003
Status: Phase 2 Construction
Project Type: Marsh Creation
Project Area: 471 acres
Total Est. Cost: $28.3 M

Location

The project is located adjacent to Bayou Dupont and southeast of Cheniere Traverse Bayou in the vicinity of Ironton in Plaquemines Parish and Lafitte in Jefferson Parish, Louisiana. The general area lies west of LA Hwy 23 and just north of the Myrtle Grove Marina within the Barataria Basin.

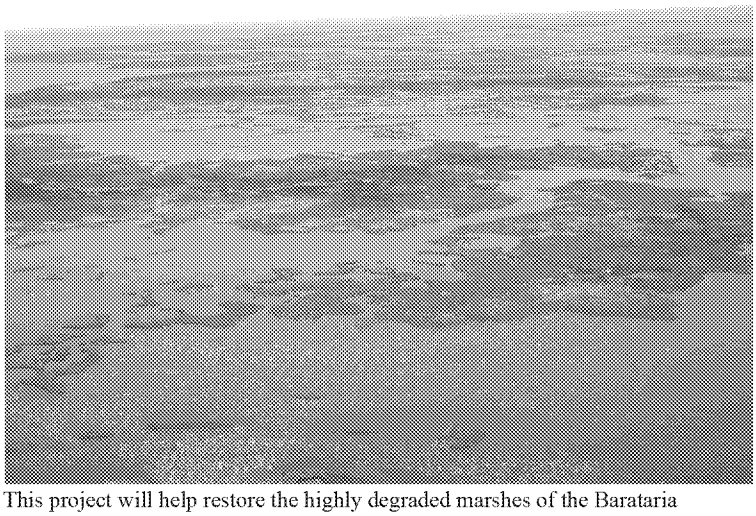
Problems

Marshes in the project area have degraded to open water with only scattered clumps of low-lying vegetation remaining. Marsh degradation has resulted from a combination of lack of natural fresh water and sediment input, subsidence and the dredging of oil and gas canals.

Restoration Strategy

The proposed project involves dredging sediment from the Mississippi River for marsh creation and pumping it via pipeline into an area of open water and broken marsh west of the Plaquemines Parish flood protection levee. The material will spread over the project area and be contained primarily with existing land features. Newly-constructed low containment dikes will be necessary only along a limited portion of the project area. Native intertidal marsh vegetation will be planted post construction.

The proximity of the project to the Mississippi River presents a prime opportunity to employ a pipeline delivery system that will utilize the sediment resources from the river to restore and create wetlands. Unlike most marsh creation projects that involve borrowing fill material from adjacent shallow water areas within the landscape, this project will utilize renewable river sediment, thus minimizing disruption of the adjacent water and marsh platform.



This project will help restore the highly degraded marshes of the Barataria Landbridge.

The Bayou Dupont project represents the first example of pipeline transport of sediment from the river to build marsh as a CWPPRA project. Results from this project should serve to demonstrate the value and efficacy of greater use of pipeline-conveyed river sediments for coastal restoration.

Progress to Date

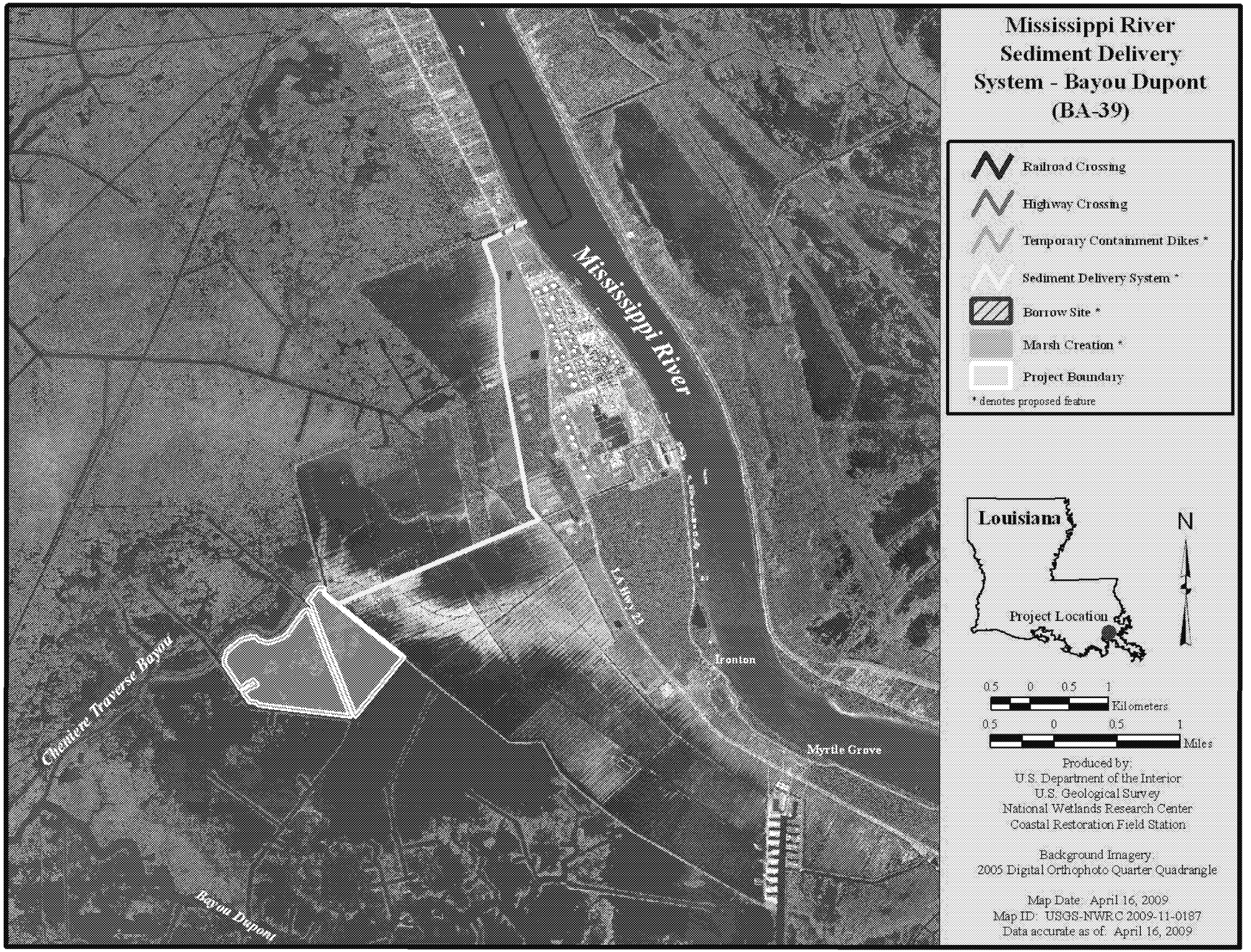
The Louisiana Department of Natural Resources (LDNR) Coastal Engineering Division performed the engineering and design services. Construction activities began in April of 2009.

This project is on Priority Project List 12.

For more project information, please contact:

Federal Sponsor:
U.S. Environmental Protection Agency
Dallas, TX
(214) 665-7459

Local Sponsor:
Office of Coastal Protection and Restoration
Baton Rouge, LA
(225) 342-4122



Change Orders

CHANGE ORDER NO. 1

OWNER:	State of Louisiana, CPRA, Office of Coastal Protection & Restoration
CONTRACTOR	Great Lakes Dredge & Dock Company, Inc.
PROJECT:	Mississippi River Sediment Delivery System Bayou Dupont (BA-39)
FILE NO:	P 27204 UL
PURCHASE ORDER NO:	3419637
ENGINEER:	ABMB Engineers, Inc.

You are directed to make the following changes in the Contract Documents:

Description: Decrease the quantity of Bid Item 3 "Earthen Containment Dikes" by 886 Linear Feet to 25,935 Linear Feet to adjust quantity that actually performed due to field conditions and for a reduction in the length of dike as requested by the Contractor per Field Order No.1. Increase the quantity for Bid Item 4 "Jacked Casing Pipe" by 30 Linear Feet to 290 Linear Feet as required for clearance from railroad, Hwy, 23 and overhead power line. Increase the Time for Completion by 30 calendar days to 300 calendar days per Addendum Nos. 4 and 5.

Attachments (list documents supporting change): None

Change in Contract Price		Change in Contract Time	
Original Contract Price	$20,719,145.50	Original Contract Time (calendar days)	270
Net Increase (Decrease) from previous Change Orders	$0.00	Net Increase (Decrease) from previous Change Orders (days)	0
Contract Price prior to this Change Order	$20,719,145.50	Contract Time prior to this Change Order (calendar days)	270
Net Increase (Decrease) of this Change Order	$4,470.00	Net Increase (Decrease) of this Change Order (days)	30
Contract Price with this Change Order	$20,723,615.50	Contract Time with this Change Order (calendar days)	300

RECOMMENDED:

By: _____
ABMB Engineers, Inc.

Date: 9/17/09

APPROVED:

By: _____
OCPR Construction Manager

Date: 9/17/09

ACCEPTED:

By: _____
Contractor; Great Lakes Dredge & Dock Company, Inc.

Date: 9/17/09

CHANGE ORDER NO. 2

OWNER:	State of Louisiana, CPRA, Office of Coastal Protection & Restoration
CONTRACTOR	Great Lakes Dredge & Dock Company, Inc.
PROJECT:	Mississippi River Sediment Delivery System Bayou Dupont (BA-39)
FILE NO:	P 27204 UL
PURCHASE ORDER NO:	3419637
ENGINEER:	ABMB Engineers, Inc.

You are directed to make the following changes in the Contract Documents:

Description: Construct the Increment 2 additional Marsh in accordance with the Contract requirements and the attachments listed below. Add the following Pay Items as further described in the Summary of Change Order 2 and the attachments listed:

8 Mobilization and Demobilization,
9 Surveys,
10 Earthen Containment Dikes,
11 Marsh Creation Fill,
12 Settlement Plate,
13 Federal Reporting,
14 Stand-by Time.

Increase the Time for Completion by 75 calendar days to 375 calendar days.

Attachments (list documents supporting change):
Increment 2 Plans, February 23, 2010
Increment 2 Specifications , February 23, 2010
SCHEDULE OF BID ITEMS 2/23/10

Original Contract Price	$20,719,145.50	Original Contract Time (calendar days)	270
Net Increase (Decrease) from previous Change Orders	$3,870.00	Net Increase (Decrease) from previous Change Orders (days)	30
Contract Price prior to this Change Order	$20,723,015.50	Contract Time prior to this Change Order (calendar days)	300
Net Increase (Decrease) of this Change Order	$4,566,003.00	Net Increase (Decrease) of this Change Order (days)	75
Contract Price with this Change Order	$25,289,018.50	Contract Time with this Change Order (calendar days)	375

RECOMMENDED:	APPROVED:	ACCEPTED:
By:	By:	By:
ABMB Engineers, Inc.	OCPR Construction Manager	Contractor; Great Lakes Dredge & Dock Company, Inc.
Date: 3/2/10	Date: 3/2/10	Date: 3/2/10

MISSISSIPPI RIVER SEDIMENT DELIVERY SYSTEM – BAYOU DUPONT (BA-39)
FILE NO: P 27204 UL, PURCHASE ORDER NO: 3419637

SUMMARY OF CHANGE ORDER NO. 2

Description	Quantity	Unit	Unit Price	Amount
Pay Item No. 8 – Mobilization and Demobilization	1	LS	$420,000.00	$420,000.00
Pay Item No. 9 - Surveys	1	LS	$65,000.00	$65,000.00
Pay Item No. 10 - Earthen Containment Dikes	6,204	LF	$43.00	$266,772.00
Pay Item No. 11 - Marsh Creation Fill	390,055	CY	$9.20	$3,588,506.00
Pay Item No. 12 - Settlement Plate	1	EA	$3,300.00	$3,300.00
Pay Item No. 13 - Federal Reporting	1	LS	$5,000.00	$5,000.00
Pay Item No. 14 – Stand-by Time (as needed, not to exceed 5% of the sum of Pay Items 8 through 13 above.)	1.6725	DREDGE DAY	$130,000.00	$217,425.00
Net (Decrease) of this Change Order				$4,566,003.00

APR 2 6 2010

CHANGE ORDER NO. 3

OWNER:	State of Louisiana, CPRA, Office of Coastal Protection & Restoration
CONTRACTOR	Great Lakes Dredge & Dock Company, Inc.
PROJECT:	Mississippi River Sediment Delivery System Bayou Dupont (BA-39)
FILE NO:	P 27204 UL
PURCHASE ORDER NO:	3419637
ENGINEER:	ABMB Engineers, Inc.

You are directed to make the following changes in the Contract Documents:

Description:
Increase the Time for Completion by 48 calendar days to 423 calendar days as follow; 34 calendar days as agreed due to USACE restrictions on excavation within 1500' of the levee when the Mississippi River is above +11.0' at the Carrollton gage after reconsideration of factors affecting scheduling of the subcontractors to install casing under Hwy. 23 and the Railroad, and 14 calendar days for lost time due to damage to the dredge ladder travel block encountering a large anchor chain while dredging on February 9, 2010. It is understood that there will be no additional cost to the owner related to any Government restrictions on work due to high river or encounters with objects while dredging.

Attachments (list documents supporting change):
Peter Hopkins email to SRMorrison dated February 17, 2010
Great Lakes Serial Letter SGLDD-57 dated March 31, 2010
Great Lakes Serial Letter SGLDD-50 dated February 16, 2010
Great Lakes Serial Letter SGLDD-51 dated February 23, 2010

Original Contract Price	$20,719,145.50	Original Contract Time (calendar days)	270
Net Increase (Decrease) from previous Change Orders	$4,569,873.00	Net Increase (Decrease) from previous Change Orders (days)	105
Contract Price prior to this Change Order	$25,289,018.50	Contract Time prior to this Change Order (calendar days)	375
Net Increase (Decrease) of this Change Order	$0.00	Net Increase (Decrease) of this Change Order (days)	48
Contract Price with this Change Order	$25,289,018.50	Contract Time with this Change Order (calendar days)	423

RECOMMENDED:

By: Deborah Sheets
ABMB Engineers, Inc.

Date: 4/21/10

APPROVED:

By: Peter N. Hopkins
OCPR Construction Manager

Date: 5/3/10

ACCEPTED:

By: Ray B. Woods
Contractor; Great Lakes Dredge & Dock Company, Inc.

Date: 4/22/10

CHANGE ORDER NO. 4

OWNER:	State of Louisiana, CPRA, Office of Coastal Protection & Restoration
CONTRACTOR	Great Lakes Dredge & Dock Company, Inc.
PROJECT:	Mississippi River Sediment Delivery System Bayou Dupont (BA-39)
FILE NO:	P 27204 UL
PURCHASE ORDER NO:	3419637
ENGINEER:	ABMB Engineers, Inc.

You are directed to make the following changes in the Contract Documents:

Description: This Final Reconciliation Change Order adjusts the Contract quantities to the As-Built quantities in accordance with the final measurements and adds a deductive Pay Item No. 15 Damages to Existing Geotechnical Monitoring Stations. Adjust the following Pay Item quantities as further described in the Summary of Change Order 4 and the attachments listed:

Attachments (list documents supporting change):
Piezometer Site Visit 8-19-09 damage.pdf
Piezometer 167150010M 1-8-10 damage.pdf

Change in Contract Price		Change in Contract Time	
Original Contract Price	$20,719,145.50	Original Contract Time (calendar days)	270
Net Increase (Decrease) from previous Change Orders	$4,569,873.00	Net Increase (Decrease) from previous Change Orders (days)	153
Contract Price prior to this Change Order	$25,289,018.50	Contract Time prior to this Change Order (calendar days)	423
Net Increase (Decrease) of this Change Order	($1,276,279.04)	Net Increase (Decrease) of this Change Order (days)	0
Contract Price with this Change Order	$24,012,739.46	Contract Time with this Change Order (calendar days)	423

RECOMMENDED:

By: Deborah Sheets
ABMB Engineers, Inc.

Date: 8/19/10

APPROVED:

By: Peter Hopkins
OCPR Construction Manager

Date: 8/26/10

ACCEPTED:

By: Ray B. Woods
Contractor; Great Lakes Dredge & Dock Company, Inc.

Date: 8/25/10

MISSISSIPPI RIVER SEDIMENT DELIVERY SYSTEM – BAYOU DUPONT (BA-39)
FILE NO: P 27204 UL, PURCHASE ORDER NO: 3419637

SUMMARY OF CHANGE ORDER NO. 4

Description	Quantity	Unit	Unit Price	Amount
Pay Item No. 4 – Jacked Casing Pipe Decrease the quantity of this item by 1 Linear Foot to 289 Linear Feet - To adjust quantity to that actually performed due to field conditions	-1	LF	$1,015.00	-$1,015.00
Pay Item No. 5 – Marsh Creation Fill Decrease the quantity of this item by 97341 Cubic Yards to 2,237,769 Cubic Yards - To adjust quantity to that actually performed due to field conditions	-97,341	CY	$6.05	-$588,913.05
Pay Item No. 10 - Earthen Containment Dikes Increase the quantity of this item 37 Linear Feet to 6,241 Linear Feet - To adjust quantity to that actually performed due to field conditions	37	LF	$43.00	$1,591.00
Pay Item No. 11 – Marsh Creation Fill Decrease the quantity of this item 49,584 Cubic Yards to 340,471 Cubic Yards - To adjust quantity to that actually performed due to field conditions	-49,584	CY	$9.20	-$456,172.80
Pay Item No. 14 – Stand-by Time (as needed, not to exceed 5% of the sum of Pay Items 8 through 13 above.) Decrease the quantity of this item 1.6725 Dredge Days to 0 Dredge Days - To adjust quantity to that actually used	-1.6725	DREDGE DAY	$130,000.00	-$217,425.00
Pay Item No.15 – Damages to Existing Geotechnical Monitoring Stations	1	LS	-$14,344.19	-$14,344.19
Net (Decrease) of this Change Order				-$1,276,279.04

Field Orders

FIELD ORDER NO. 1

OWNER:	State of Louisiana, Department of Natural Resources
CONTRACTOR	Great Lakes Dredge & Dock Company, Inc.
PROJECT:	Mississippi River Sediment Delivery System Bayou Dupont (BA-39)
FILE NO:	P27204 UL
PURCHASE ORDER NO:	3419637
ENGINEER:	Louisiana Department of Natural Resources, Coastal Engineering Division

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You are directed to promptly execute this Field Order in accordance with Section GP-33 "Changes in Work" for minor changes in the Work not involving adjustments in the Contact Price or Contract Time.

Description:

This field change allows the Contractor to realign the containment dike in Marsh Area 2 as discussed in the May 13, 2009 meeting. The containment dike in the northeast corner will terminate at the 50 foot buffer of the Shell Pipeline at no additional cost to the owner and no contract time extension. Any material outside of the limits of fill as a result of the nonconfined area will not be considered for measurement and payment.

This field change was made at the request of the contractor and does not release the contractor from any of his contract obligations.

Attachments (list documents supporting change):

1. Figure 1

By: _____
ABMB Engineers, Inc.

Date: 6/11/09

By: _____
OCPR Construction Manager

Date: 6/11/09

By: _____
Contractor: Great Lakes Dredge & Dock Company LLC

Date: 6/11/09

FIELD ORDER NO. 2

OWNER:	State of Louisiana, CPRA, Office of Coastal Protection & Restoration
CONTRACTOR	Great Lakes Dredge & Dock Company, Inc.
PROJECT:	Mississippi River Sediment Delivery System Bayou Dupont (BA-39)
FILE NO:	P 27204 UL
PURCHASE ORDER NO:	3419637
ENGINEER:	ABMB Engineers, Inc.

You are directed to promptly execute this Field Order in accordance with Section GP-33 "Changes in Work" for minor changes in the work not involving adjustments in the Contract Price or Contract Time.

Description
In order to increase the area available for navigation past the project borrow area in response to comments from the navigation industry, the project borrow area is hereby relocated approximately 350' toward the west bank of the Mississippi River in accordance with the attached revised borrow area coordinates.

A pre-construction hydrographic survey will not be required, however the As- built survey shall include the original borrow area as well as the revised area in one survey. It is recommended that a magnetometer survey be performed.

This field change does not release the Contractor from any of his Contract obligations.

Attachments (list documents supporting change):

1. BA39 USACE Revised Borrow Area 2.10/10
2. Department of the Army letter dated January 13, 2010.

RECOMMENDED:	**APPROVED:**	**ACCEPTED:**
By: Deborah Sheets	By: Peter Kopelman	By: Ray B. Woods
ABMB Engineers, Inc.	OCPR Construction Manager	Contractor, Great Lakes Dredge & Dock Company, Inc.
Date: 2/18/10	Date: 2/22/10	Date: 2/16/10

OWNER:	State of Louisiana, Department of Natural Resources
CONTRACTOR	Great Lakes Dredge & Dock Company, Inc.
PROJECT:	Mississippi River Sediment Delivery System Bayou Dupont (BA-39)
FILE NO:	P27204 UL
PURCHASE ORDER NO:	3419637
ENGINEER:	Louisiana Department of Natural Resources, Coastal Engineering Division

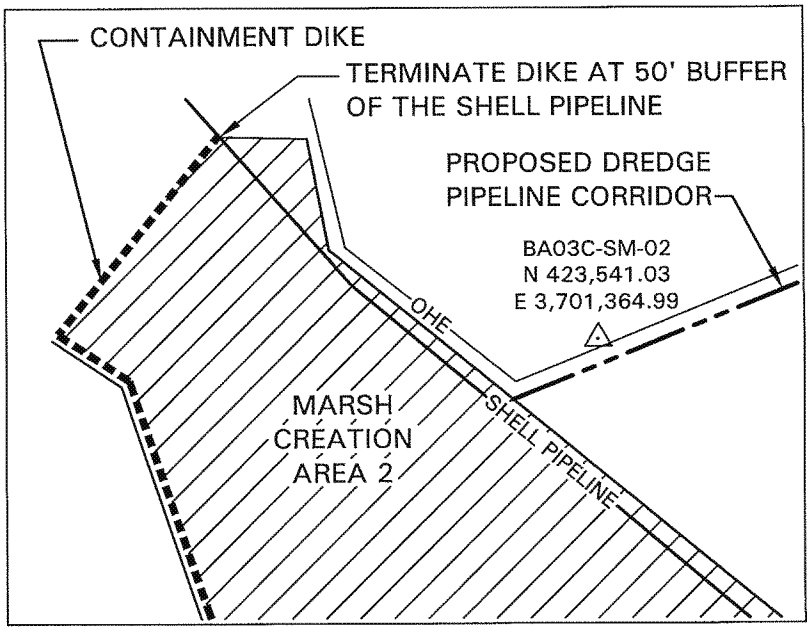
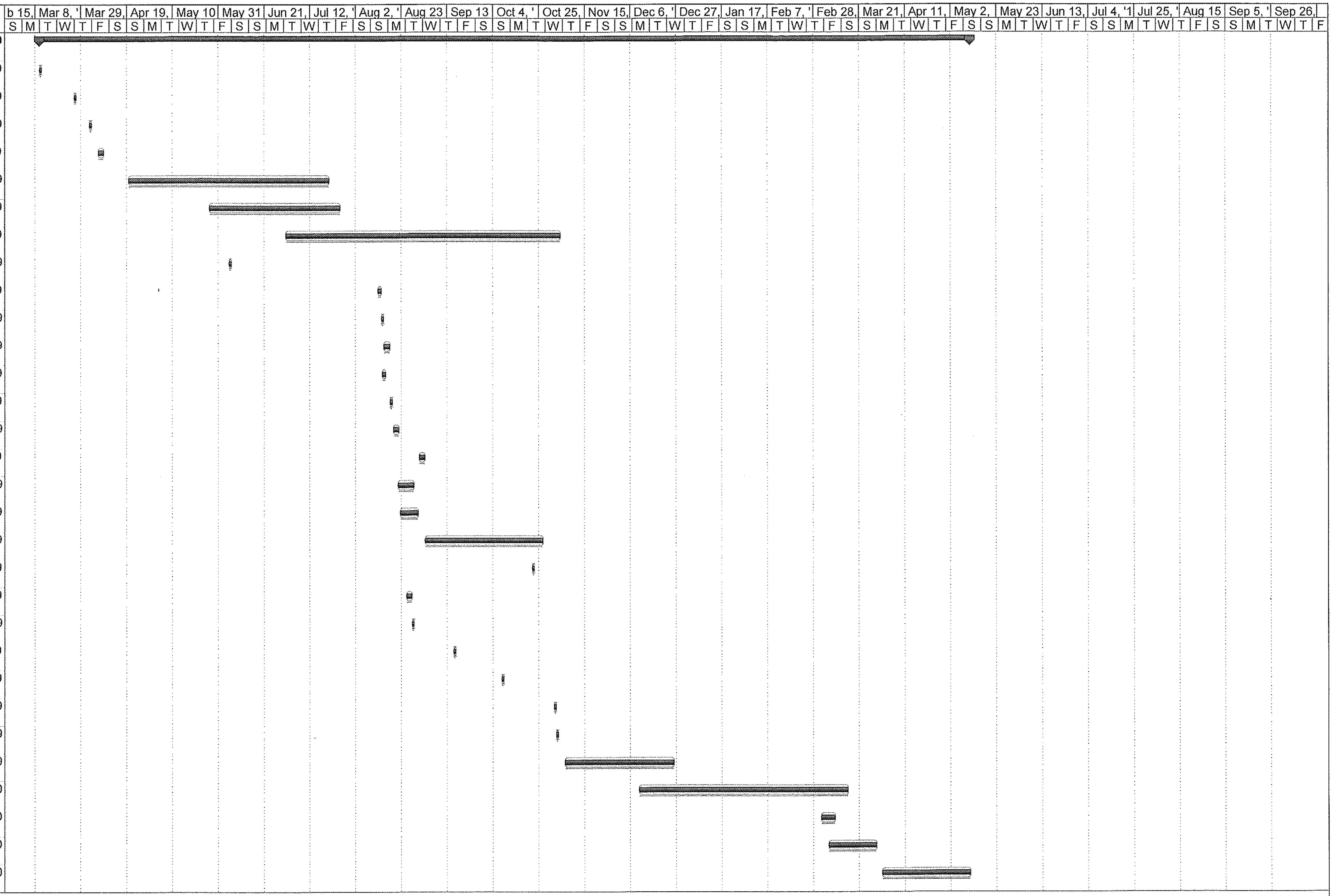


Figure 1

As-Built Schedule

ID	Task Name	Start	Finish
1	**2053.01 Sediment Delivery System Bayou Dupont**	**Tue 3/10/09**	**Mon 5/10/10**
2	Receipt of Notice to Proceed	Tue 3/10/09	Tue 3/10/09
3	Pre-work conference	Thu 3/26/09	Thu 3/26/09
4	Survey layout	Thu 4/2/09	Thu 4/2/09
5	Magnetometer Survey	Mon 4/6/09	Wed 4/8/09
6	Build containment dikes- Wilco	Mon 4/20/09	Mon 7/20/09
7	Pipe delivery	Wed 5/27/09	Sat 7/25/09
8	Slurry pipe installation	Wed 7/1/09	Tue 11/3/09
9	SP-5 moved	Fri 6/5/09	Fri 6/5/09
10	Sheet pile for Rail Road jacking pit	Wed 8/12/09	Thu 8/13/09
11	Sheet pile for Rail Road receiving pit	Fri 8/14/09	Fri 8/14/09
12	Sheet pile for Hwy. 23 jacking pit	Sat 8/15/09	Mon 8/17/09
13	Sheet pile for Hwy. 23 receiving pit	Fri 8/14/09	Sat 8/15/09
14	Excavating for Rail Road jacking pit	Tue 8/18/09	Tue 8/18/09
15	Excavating for Rail Road receiving pit	Wed 8/19/09	Fri 8/21/09
16	Excavating for Hwy. 23 jacking pit	Mon 8/31/09	Wed 9/2/09
17	Excavating for Hwy. 23 receiving pit	Fri 8/21/09	Fri 8/28/09
18	Boring at Rail Road	Sat 8/22/09	Sun 8/30/09
19	Boring at Highway 23	Thu 9/3/09	Mon 10/26/09
20	Received COE permit waiver	Thu 10/22/09	Thu 10/22/09
21	Marsh stake installation	Tue 8/25/09	Thu 8/27/09
22	Booster Jessie mobilized	Fri 8/28/09	Fri 8/28/09
23	Dredge mobilized	Wed 9/16/09	Wed 9/16/09
24	Dredge demobilized	Thu 10/8/09	Thu 10/8/09
25	Dredge mobilized	Sun 11/1/09	Sun 11/1/09
26	Set settlement plates	Mon 11/2/09	Mon 11/2/09
27	Pumping Fill to Marsh Creation Area Two	Fri 11/6/09	Fri 12/25/09
28	Pumping fill to Marsh Creation Area One	Thu 12/10/09	Mon 3/15/10
29	Increment Two-Build containment dikes- Wilco	Wed 3/3/10	Tue 3/9/10
30	Increment Two- pumping fill	Sun 3/7/10	Sun 3/28/10
31	Demobilize	Wed 3/31/10	Mon 5/10/10



Project: Civil Works.Published
Date: Tue 10/26/10

Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

ED_005856B_00001891-00036

Settlement Plate

Great Lakes
Dredge & Dock
Company, LLC

2122 York Road
Oak Brook, Illinois 60523
630.574.3000

June 4, 2009

Sent via Email

Serial Letter No. SGLDD-012

Mrs. Debbie Sheets P.E.
ABMB Engineers, Inc.
500 Main Street
Baton Rouge, LA 70801

Re: Contract No. BA-39, Mississippi River Sediment Delivery System Bayou DuPont, Jefferson & Plaquemines Parishes, Louisiana
Submittal of Settlement Plate Design

Dear Mrs. Sheets:
Please find attached a drawing of the proposed settlement plate design for the project to meet the requirements of **TS-7 Settlement Plates** and Sheet 18 of 24 of the Plans. The upper rod is detachable as requested by the DNR and the lower rod has been extended to provide more stability. The drawing contains a table showing the proposed length for each location specified in the contract.

Please review and approve the proposed design and length.

If you have any questions please do not hesitate to contact me at (504) 656-0446.

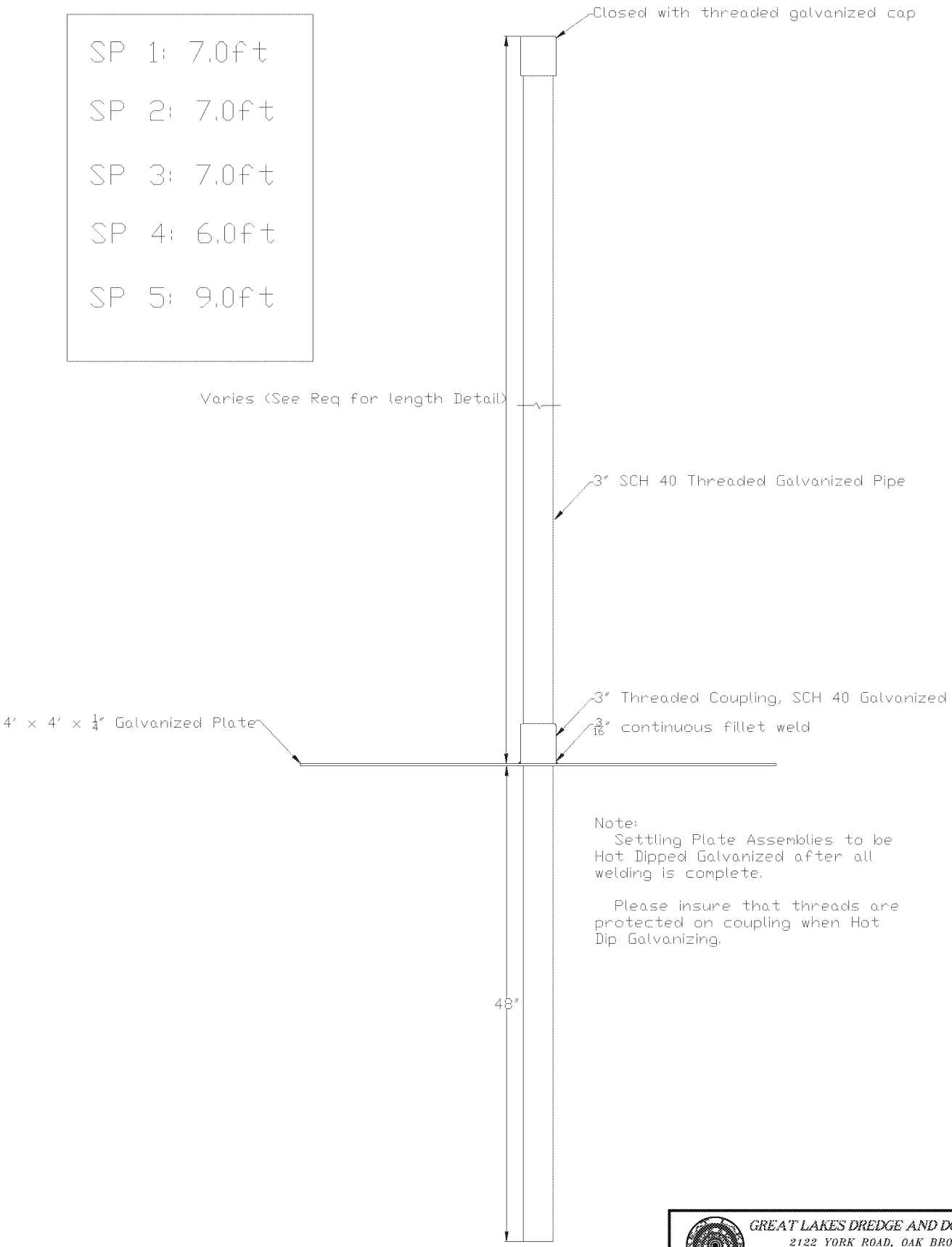
Sincerely,

Great Lakes Dredge & Dock Company, LLC

Roy B. Woods

Roy B. Woods
Contracts Manager

SP 1: 7.0ft
SP 2: 7.0ft
SP 3: 7.0ft
SP 4: 6.0ft
SP 5: 9.0ft



Note:
Settling Plate Assemblies to be Hot Dipped Galvanized after all welding is complete.

Please insure that threads are protected on coupling when Hot Dip Galvanizing.

GREAT LAKES DREDGE AND DOCK COMPANY
2122 YORK ROAD, OAK BROOK IL 60523
CIVIL ENGINEERING / SURVEYING DIVISION
Phone: (630) 574-3000 Fax: (630) 574-1515

PROJECT: Mississippi River Sediment Delivery System Bayou DuPont

TITLE/SURVEY TITLE: Settlement Plate Detail Rev. 3

DRAWING DATE:	May 26, 2009	GLDD JOB NO:	83731	SCALE:	NOT TO SCALE
FILE NAME:	Settlement Plate Detail	USACE JOB NO:	BA-39		
DRAWN BY:	M. Ferrisi	APPROVED BY:	Roy Woods	PAGE:	1 OF 1

COE Permit

DEPARTMENT OF THE ARMY PERMIT

Permittee: River Rest, LLC

MAY 19 2010

Permit No. MVN-2010-0422-EQ

Issuing Office: New Orleans District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: To maintain an existing 2200 cubic yard sand fill culverted crossing and an existing 1991 cubic yard sand fill and sheet pile bridged crossing in order to limit water access and improve land access. In accordance with drawings attached in four sheets, undated.

Project Location: Within CWPPRA project BA-39 at Latitude 29.65584/Longitude -90.01263 and Latitude 29.65086/Longitude -90.02532, approximately 5.8 miles east-southeast of Lafitte in Jefferson Parish, Louisiana.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **MAY 31, 2015**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: See Page 4.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

X _____ X 5/19/10
(PERMITTEE) (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

_____ May 19, 2010
Michael V. Farabee, Chief Eastern Evaluation Section (DATE)

for Alvin B. Lee, District Commander

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____
(TRANSFEREE) (DATE)

SPECIAL CONDITIONS: MVN-2010-0422-EQ

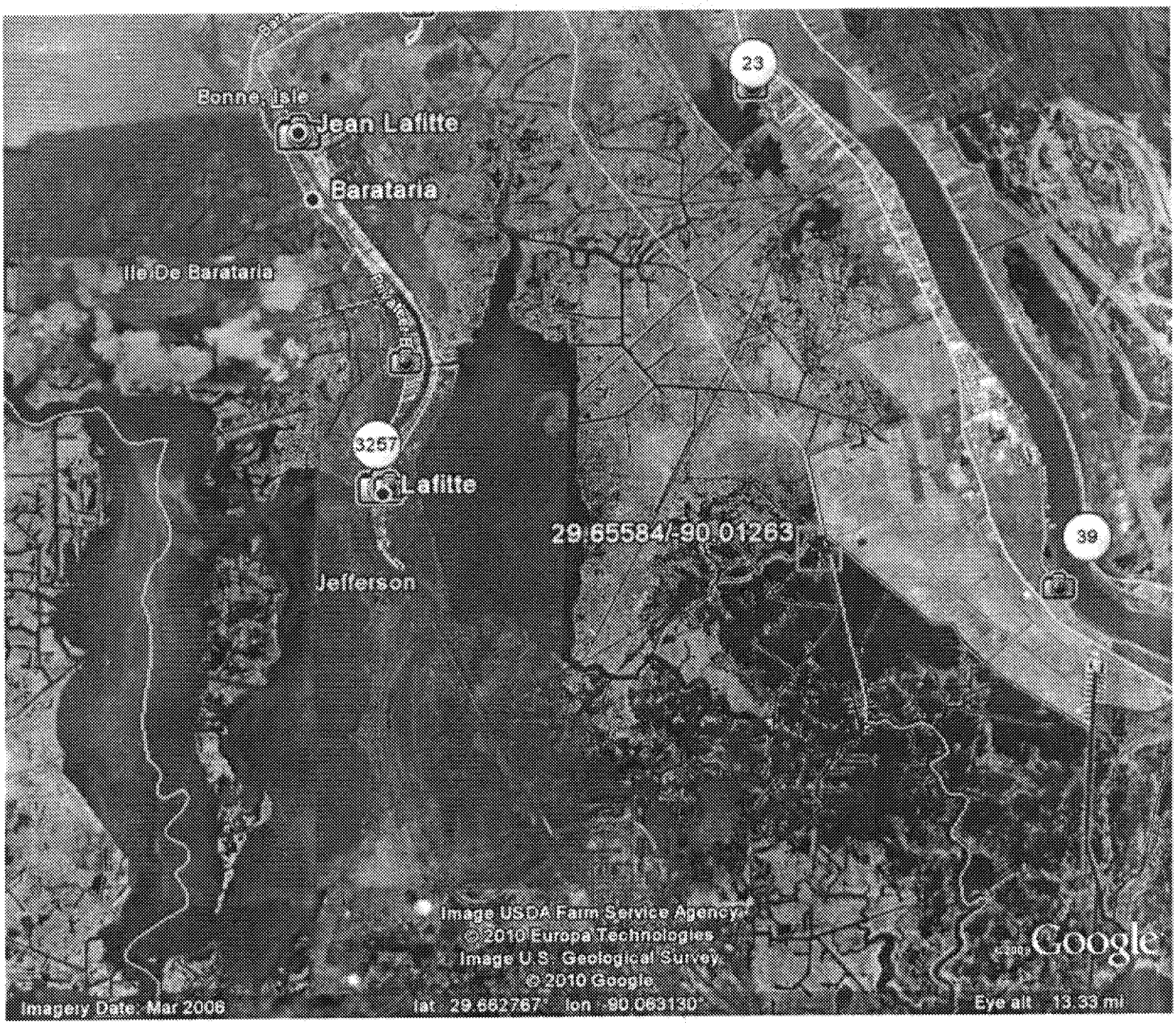
7. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

8. The permittee must install and maintain, at the permittee's expense, any safety lights, signs, and signals prescribed by the US Coast Guard, through regulations or otherwise, on the permittee's authorized facilities.

9. If the proposed project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.,) in the waterway, you are advised to notify the U.S. Coast Guard so that a Notice to Mariners, if required, may be prepared. Notification, with a copy of your permit approval and drawings, should be mailed to the US Coast Guard District, Sector New Orleans Command Center, 201 Hammond Highway, Metairie, Louisiana 70005, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 846-5923.

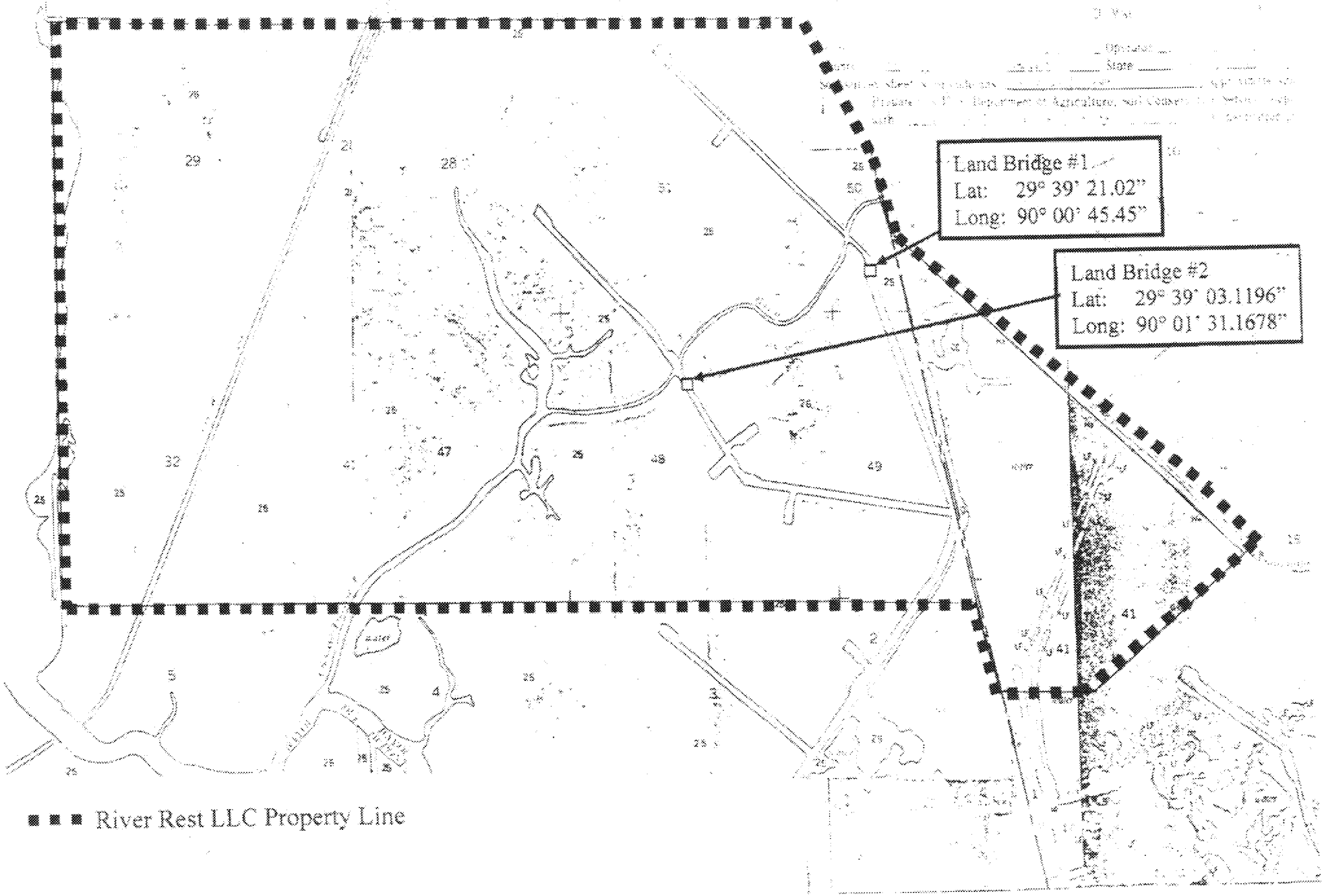
10. The Use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters.

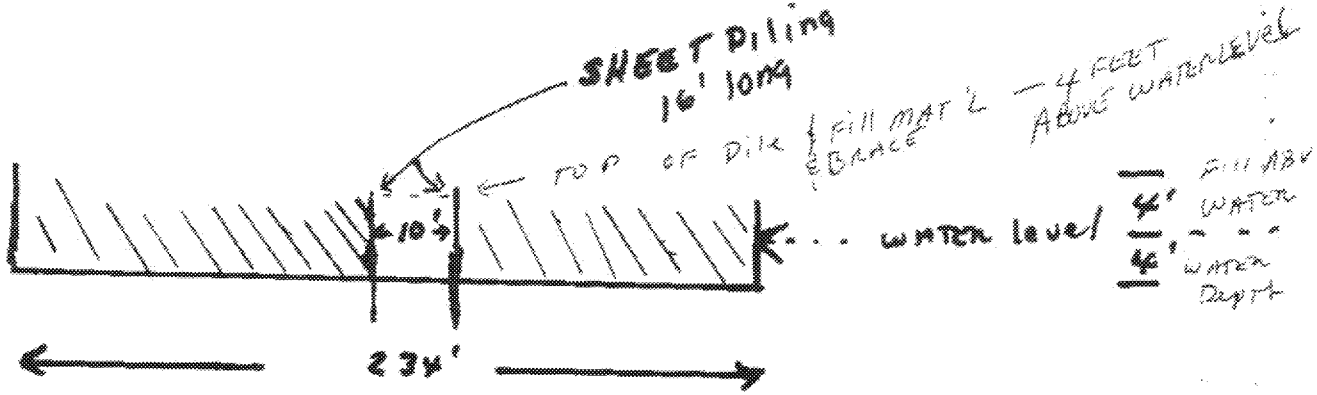
11. The permittee must maintain both crossings open as shown in the enclosed drawings.



Project Site

Land Bridge to Limit Water Access and Improve Land Access, ~~Plaquemines~~ Jefferson Parish
Site Map



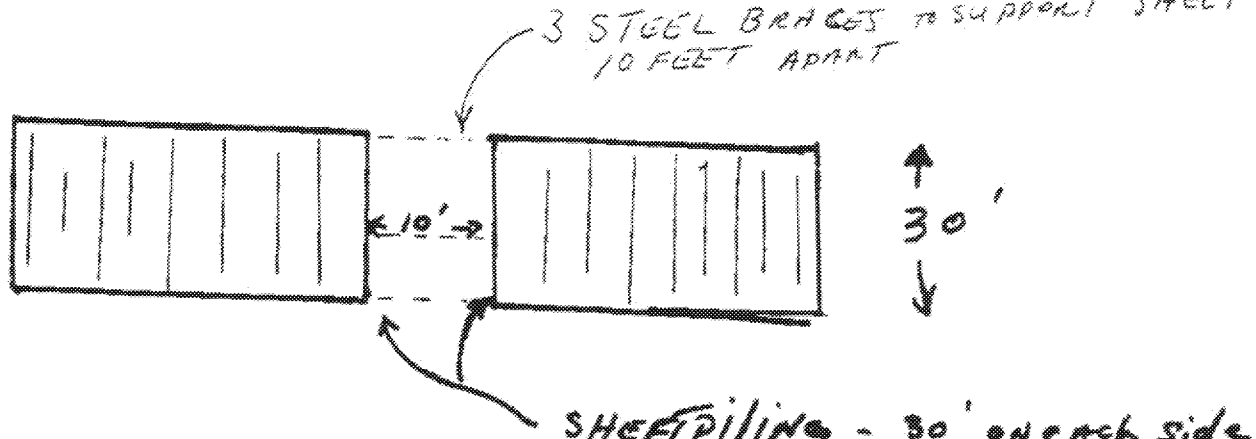


1991 yd³ of fill

.154 acres

of non vegitated water bottom

Cross section
not to scale



Lat 29° 39' 03.1196"

Long 90° 01' 31.1678"

Plan View

not to scale

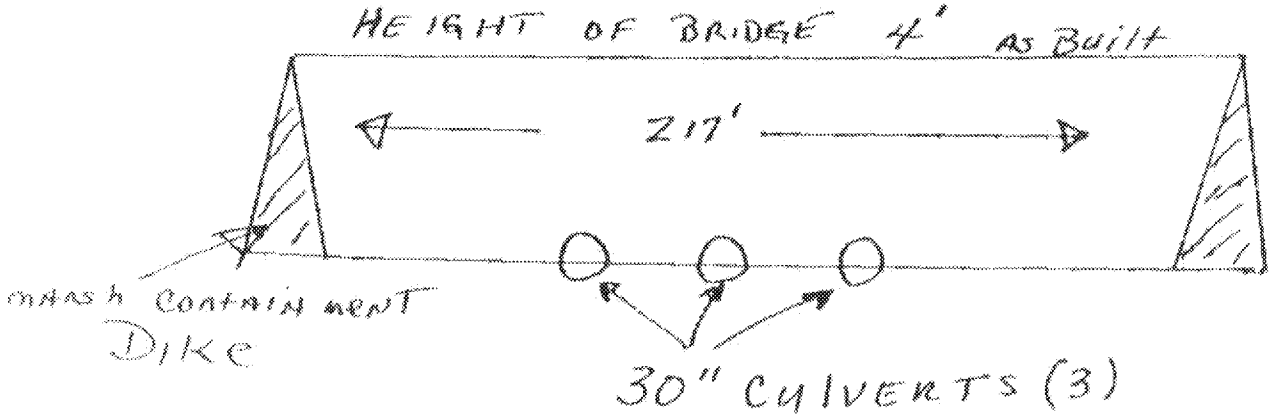
Land bridge to limit water access and improve land access

Landbridge #2

CROSS SECTION

LAND Bridge to Limit Water Access and Improve Land Access

2200 yd^3 of SAND USED ON NON Vegitated WATER Bottom



LAT 29° 39' 21.02"

LONG 90° 00' 45.45"

Landbridge #1

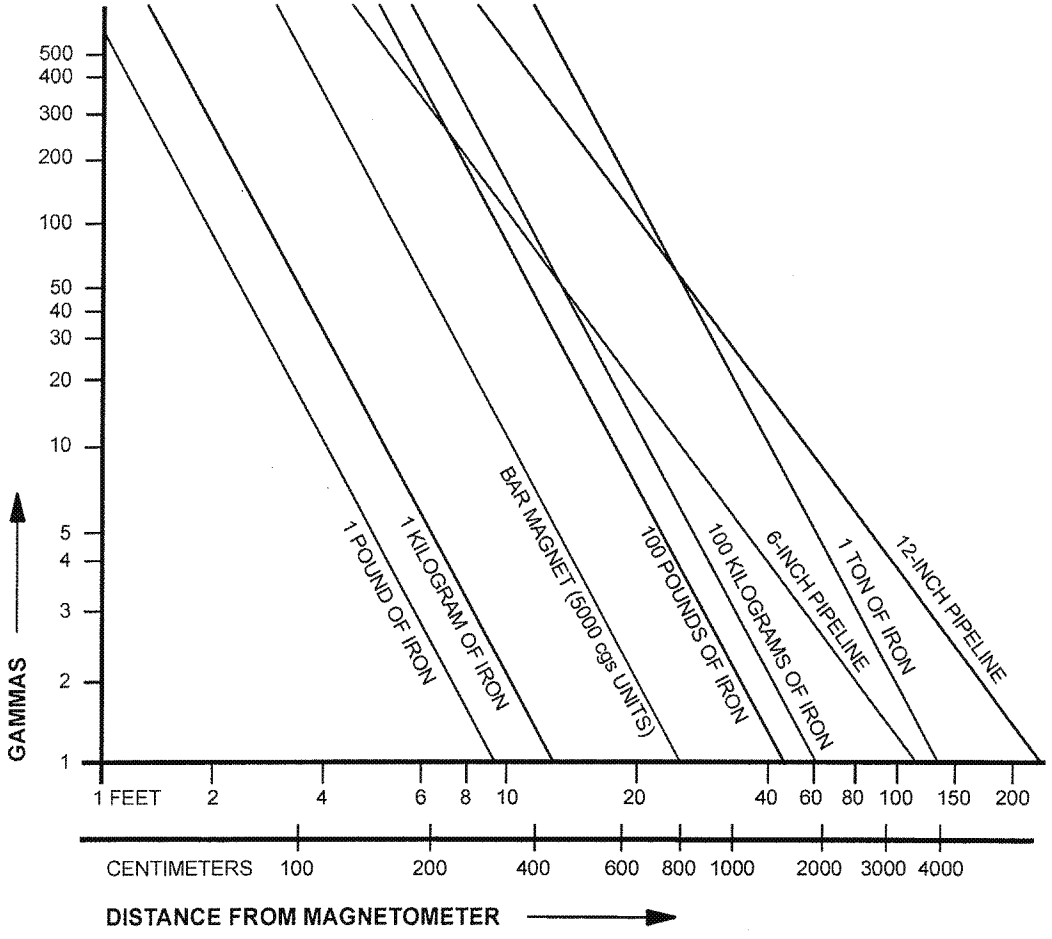
Magnetometer Guide

USER'S GUIDE TO MAGNETIC ANOMALY TABLE

GLOSSARY OF TERMS:

- **Anomaly No.** - The number that correlates to a particular magnetic anomaly.
- **Line No.** - The survey trackline followed by the survey vessel. On occasion a rerun of the Line may have been performed. All Lines will be posted on the Hazard map unless they would clutter hazard's presentation. Where matching anomalies are recorded, the larger gamma reading will be posted.
- **Recorded Position** - The Shot Point where the anomaly can be found on the original records. No towing setback is applied.
- **Corrected Position** - The Shot Point where the anomaly can be found on the Hazard Map. Setback from the navigation antenna is applied.
- **Amplitude in Gammas** - Maximum magnetic field deflection from crest to trough of an anomaly.
- **Width in Feet** - The distance from start of magnetic field deviation to end.
- **Monopole/Dipole/Complex** - Description of anomaly signature. Either it has a positive or negative field change (Monopole), the signature changes from positive to negative across a single anomaly (Dipole), or the signature changes from positive to negative several times across a single anomaly (Complex).
- **Sensor Height Off Bottom** - Determined with depth sensor attached near the magnetometer sensor. This elevation can be used on the Briener nomogram as minimum distance from ferrous source.
- **Description** - Source of anomaly, i.e., pipeline or structure. If source cannot be identified, the anomaly is quoted as DEBRIS. Broad signatures with low gamma amplitudes are quoted as GEOLOGIC SOURCE if they correlate to near-surface structural features.

NOMOGRAM FOR ESTIMATING ANOMALIES FROM TYPICAL OBJECTS (BREINER, 1973)



INSTRUCTIONS FOR USE:

To use the nomogram, select a given weight or type of object from among the diagonal labeled lines. Then choose a distance along the bottom line (abscissa) of the graph and follow a vertical line upwards from that distance until it intersects the diagonal line of the selected object. At that point, move horizontally to the left to a value on the vertical axis (ordinate) of the graph and read the intensity in gammas.

At a given distance, the intensity is proportional to the weight of the object. Therefore, for an object whose weight is not precisely that of the labeled lines, simply multiply the intensity in gammas by the ratio of the desired weight to the labeled weight on the graph. If the distance desired does not appear on the graph, remember that for a typical object the intensity is inversely proportional to the cube of the distance and for a long pipeline the intensity is inversely proportional to the square of the distance between magnetometer sensor and object. Due to many uncertainties described herein the estimates derived from this nomogram may be larger or smaller by a factor of 2 to 5 or perhaps more.